

**Patent Claims**

1. A heat exchanger having at least one tube through which a first medium can flow and which at a first end region is connected to a first terminating element and at a second end region is connected to a second terminating element, a first and a second tube part respectively being connected to the first and second terminating elements,  
5 characterized in that the two tube parts run radially into one another at least over a partial region of their axial extent, with at least one sealing element in the spatial region between the tube parts.
- 15 2. The heat exchanger as claimed in claim 1, characterized in that at least one chamber is formed between the first tube part and the second tube part.
- 20 3. The heat exchanger as claimed in one of the preceding claims, characterized in that at least one chamber is formed by the first tube part and a second tube part.
- 25 4. The heat exchanger as claimed in one of the preceding claims, characterized in that the at least one chamber has at least one substantially ring-like, radially protruding element.
- 30 5. The heat exchanger as claimed in claim 3 or 4, characterized in that the at least one chamber has at least two elements which protrude in the radial direction substantially in ring form and are spaced apart in the axial direction.
- 35 6. The heat exchanger as claimed in one of the preceding claims, characterized in that at least one element which protrudes radially in the style

of a ring forms an integral constituent of a tube part.

7. The heat exchanger as claimed in one of the preceding claims, characterized in that the elements which protrude in the style of rings are formed integrally with one tube part and/or the other tube part.
- 10 8. The heat exchanger as claimed in one of the preceding claims, characterized in that at least one element which protrudes in the style of a ring is an additional component which is arranged between one tube part and the other tube part and if appropriate is connected to one tube part or the other tube part.
9. The heat exchanger as claimed in one of the preceding claims, characterized in that the chamber is at least substantially sealed off by the ring-like elements.
10. The heat exchanger as claimed in one of the preceding claims, characterized in that the chamber is not sealed off by the ring-like elements.
11. The heat exchanger as claimed in one of the preceding claims, characterized in that the elements which protrude in the style of rings serve as a support, as seen in the radial direction, for the tube parts.
12. The heat exchanger as claimed in a preceding claim, characterized in that the elements which protrude in the style of rings serve as axial bearings.

13. The heat exchanger as claimed in one of the preceding claims, characterized in that the chamber is at least partially filled with an elastic means.

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14. The heat exchanger as claimed in claim 11, characterized in that the chamber is filled in such a manner that a ring-like element is formed from the elastic medium in the chamber, which extends between the radially inner tube part and the radially outer tube part.

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15. The heat exchanger as claimed in a preceding claim, characterized in that the elastic element can be laid into the chamber as a ring element.

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16. The heat exchanger as claimed in a preceding claim, characterized in that the elastic element can be introduced into the chamber as a pasty or gel-like medium.

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17. The heat exchanger as claimed in one of the preceding claims, characterized in that a plurality of tubes through which a first medium flows are arranged substantially parallel to one another radially inside the tube parts.

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18. The heat exchanger as claimed in claims 1 and 4, characterized in that the plurality of tubes are each connected, at their first end region, to a first terminating element and are each connected, at their second end region, to the second terminating element.

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35 19. The heat exchanger as claimed in one of the preceding claims, characterized in that the at least one tube through which a first medium flows is connected, at at least one end region, to a

connection element for supplying and/or discharging a first medium.

20. The heat exchanger as claimed in one of the  
5 preceding claims, characterized in that at least  
one terminating element is connected to at least  
one connection element for supplying and/or  
discharging a first medium.

10 21. The heat exchanger as claimed in one of the  
preceding claims, characterized in that the tube  
parts which are connected at the respective  
terminating elements, with elastic means provided  
in the chamber, form a substantially sealed  
15 spatial region, with at least two connection  
elements being provided and it being possible for  
a second medium to flow through the spatial region  
through the connection elements.

20 22. The heat exchanger as claimed in one of the  
preceding claims, characterized in that the second  
medium flows around the tubes through which the  
first medium flows.